

HOUSE OF LORDS

SESSION 1993—94
1st REPORT

SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY

EUROPEAN COMMUNITY
FOURTH FRAMEWORK PROGRAMME
FOR R & D

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SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY

EUROPEAN COMMUNITY
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FOR R & D

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FIRST REPORT

25 November 1993

By the Select Committee appointed to consider Science and Technology.

ORDERED TO REPORT

EUROPEAN COMMUNITY FOURTH FRAMEWORK PROGRAMME FOR R & D

1. On 25 November 1993, the Select Committee met Professor Antonio Ruberti, Vice-President of the European Commission, to discuss the Fourth Framework Programme for Research and Development. In the light of that meeting, the Chairman of the Select Committee wrote a letter to the Rt Hon William Waldegrave MP, Chancellor of the Duchy of Lancaster and Minister for Science. The letter makes certain points which we hoped the Minister would bear in mind when negotiating on the Framework Programme in the Council of Ministers.
2. The Chairman's letter is at Appendix 2. Appendix 3 gives a background note by our Specialist Assistant, and Appendix 4 the transcript of our exchanges with Professor Ruberti. Members of the Select Committee are listed at Appendix 1.

APPENDIX 1

The members of the Select Committee are:

L. Chorley
L. Dean of Beswick
L. Desai
B. Hilton of Eggardon
L. Howie of Troon
L. Nathan
B. Perry of Southwark
L. Perry of Walton
B. Platt of Writtle
L. Porter of Luddenhams
L. Redesdale
L. Renwick
E. Selborne (Chairman)
L. Tombs
L. Walton of Detchant

APPENDIX 2

*Letter from the Earl of Selborne KBE FRS
Chairman of the Select Committee on Science and Technology
to the Rt Hon William Waldegrave MP
Chancellor of the Duchy of Lancaster and
Minister of Public Service and Science*

29 November 1993

As you are aware, on Thursday 25th November, Professor Ruberti came to give evidence to the Select Committee on Science and Technology about the fourth framework programme of European Economic Community activities in the field of research, technological development and demonstration. As a result of the meeting the Committee have agreed that I should write this letter to you to communicate some of our thoughts about the programme.

The Committee asked Professor Ruberti about the degree of flexibility in the budget of the framework programme and whether money could be moved from one theme to another during the lifetime of the framework in the light of the volume and quality of applications received, or in response to changing needs. We were concerned to hear that the budget allocation, once agreed by the Council of Ministers and the European Parliament, is extremely rigid. Professor Ruberti told us that he would greatly welcome the ability to transfer funds, but that under the procedure of codecision any such transfers would have to be referred to the European Parliament and the Council of Ministers. We cannot suggest an immediate solution to this problem but to have a rigid budgetary framework for a programme which covers five years must be a mistake. We wonder if there might be scope for a flexibility margin similar to those budgeted for by the UK research councils.

The Committee note that under the Maastricht Treaty the procedure of codecision must apply. While this may be welcome from the point of view of democratic propriety, it must introduce another element of rigidity, to say nothing of sheer delay. This would be undesirable in any context, but especially so for a medium-term programme in the fast-moving field of science and technology. The Committee recommend that in future framework programmes the Committee on Energy, Research and Technology of the European Parliament should be consulted by the Commission at the very earliest possible stage.

The Committee is concerned about the way in which the budgetary allocations are made. Professor Ruberti told us that the research budget is allocated with reference to continuity with previous programmes, the level of participation in those programmes and their results, and "pressure" from scientists and industrialists. The increased level of consultation under Professor Ruberti is to be applauded, but the Committee feel that there is a need for greater openness concerning the basis for the allocation of the budget and the origin of the themes.

The Committee also felt that the European Commission has an important role in developing jointly-funded "mega-projects" to tackle global problems such as biodiversity and very expensive fields such as high-energy particle physics. The latter seems to us to be particularly relevant following the decision of the USA concerning the future of the superconducting supercollider. Professor Ruberti indicated that the Commission had not found it easy to develop these major areas and the only really successful scheme so far had been that developed for nuclear fusion (JET). The Committee recommend that greater emphasis is placed on tackling mega-projects where the principle of subsidiarity can be readily satisfied.

Finally, the Committee are aware of the Government's concern about the role of the Joint Research Centre and asked for Professor Ruberti's opinion on the matter. He indicated that it was difficult to strike a balance between the need for neutral advice and open competition for funds. The Committee however feel that the customer contractor principle should apply and that the JRC

should not be given an "inside track" to EC funds. The Committee would support the Government's proposals to examine very carefully the role of the JRC in helping to fulfil the objectives of each of the specific programmes.

The transcript of our exchanges with Professor Ruberti is not yet available. However the Committee has asked me to write to you immediately, because we gather that the framework programme is due to be discussed at the Council of Ministers very shortly. We wish you success in that negotiation; we look forward in due course to hearing the outcome, and the extent to which any of our concerns may have been addressed.

APPENDIX 3

*Background note for the meeting with Professor Antonio Ruberti,
Vice-President of the European Commission,
by the Specialist Assistant*

PROFESSOR RUBERTI

1. Professor Ruberti, an Italian, succeeded Filippo Pandolfi as European Commissioner with responsibility for science, research and development (DG XII) in January 1993. However, Mr Pandolfi's responsibilities for telecommunications, information technology and innovation were transferred to Martin Bangemann who was already responsible for industry (DG XIII). Professor Ruberti, a former rector of Rome University and a specialist in analyzing complex information processing systems, was given additional responsibilities for education, training and youth.

THE FOURTH FRAMEWORK PROGRAMME

2. In 1984 the European Economic Community decided to improve the coordination of its research and technological development activities by bringing them within multiannual Framework programmes. The First Framework programme covered 1984-87; the Second 1987-91 and the Third 1990-94. The Fourth European Framework programme for research and technological development is intended to run from 1994 to 1998. The specific objectives of the Fourth Framework programme (FP4) are to strengthen the competitiveness of Community industry and provide it with the knowledge and skills required to make it competitive at an international level; under the Maastricht Treaty it must also promote research activities deemed necessary to support other Community policies eg agriculture, fisheries, energy, transport. In addition FP4 should aim to meet the needs of society and promote sustainable development. [The European Parliament have proposed including job creation and placing additional emphasis on strengthening economic and social cohesion.] The Programme thus embraces basic research, basic industrial research, applied research, technological development and demonstration projects. However all these activities are explicitly confined to the pre-competitive stage.

3. Professor Ruberti has stated that he considers the amount of money spent in the Framework Programme - 4% of the total public expenditure on R & D of all the Member States - too small to allow it to operate as a thirteenth Research Council alongside national counterparts in the 12 Member States. Earlier this year he issued new guidelines to assist in the formulation of the Programme to increase the ability of Community research "to make a significant contribution to economic recovery and an improved quality of life".

4. The main points of his guidelines are that FP4 should include:

- "closer coordination of the participation of European laboratories in major international programmes" (eg environment, human genome, supercomputers);
- "better dovetailing" of FP4 with other European science programmes such as EUREKA, CERN, ESA etc;
- "a European instrument for technology assessment";
- concentration on "generic technologies", and on "subjects which concern society in general": in particular transport, and socio-economic research into the urban environment, social exclusion and education;
- more communication of technologies, standards, products and applications;
- more dissemination and application of research findings to increase the impact of Community research, particularly on small and medium-sized enterprises (SMEs);
- greater "synergy" with the EC's "structural" policies (which aim to reduce economic imbalances between regions of the EC);
- research into education and training - both needs and methods;
- more "flexibility" within FP4.

Many of these sentiments have been incorporated into the FP4 document but it is not clear how easily they will be accomplished.

THE MAASTRICHT TREATY

5. The Maastricht Treaty will change the legislative framework under which the Programme is to be adopted. Before Maastricht the budget and allocation of funds to various topics were agreed by the Council with advice from the European Parliament (EP). Under the Maastricht Treaty, the procedure of co-decision operates. The Commission produces a Proposal concerning FP4, outlining the various research areas, for the Council of Ministers. This is then discussed in both Council and the various EP Committees such as CERT (Committee on Energy Research and Technology) and the Economic and Social Committee. A final version of the Proposal must be adopted unanimously by the Council. The European Parliament then discuss the document and must, within three months, approve the Proposal or inform the Council that an absolute majority intend to reject the Proposal. If they do not issue an opinion within three months it is taken as approval. After the Proposal has been accepted, specific programmes (SPs) are drawn up which detail the way in which the overall programme's objectives are to be achieved. SPs have familiar acronyms such as BRITE, EURAM, DRIVE. SPs have to be approved by Council with a qualified majority, on the advice of the European Parliament.

THE BUDGET FOR THE FOURTH FRAMEWORK

6. The Commission have proposed a budget for FP4 (including the EURATOM Programme) of 13.1 billion ECU or £9.9 billion (reduced from the original Pandolfi request for 14.7 billion ECU). However, in the meeting of the Council of Ministers in October 1993, Germany, France and the United Kingdom pressed for further reductions in the size of the budget.

THE FRAMEWORK PROPOSAL DOCUMENT

7. The Commission has produced the Proposal, COM(93)276, which provides a detailed outline of FP4. Following adoption of the Proposal, the Commission will table the details of the specific programmes by which the objectives of FP4 will be achieved. (In practice these SPs have been already been drawn up and are closely based on the outline proposal. However they will probably be broken down further in the final version.) The Commission's proposal for FP4 is divided into four activities. The first activity covers research, technological development and demonstration programmes. This is broken down into seven themes as detailed below.

	Budget	
First Activity (total)	9450	81.0
<i>Themes</i>		
Information and communications technologies	3900	33.5
Industrial technologies	1800	15.5
Environment	970	8.3
Life sciences and technologies	1325	11.4
Energy (non-nuclear)	1150	9.8
Research for a European transport policy	280	2.4
Targeted socio-economic research	125	1.1
Second Activity (cooperation with third countries etc)	790	7.0
Third Activity (dissemination and optimisation of results)	600	5.0
Fourth Activity (training and mobility of workers)	785	7.0
[EURATOM programme - nuclear energy research	1475] ¹	

¹ In order that all areas of Community RTD policy are covered a parallel decision has to take place concerning the activities in the European Atomic Energy Programme (EURATOM). The sum to be spent on that programme is included here for completeness.

8. The first five themes of the first activity are essentially continuations of areas included in FP3 and the last two are new. The second activity covers promotion of cooperation in the field of Community research, technological development and demonstration with third countries and international organisations (mega-projects such as global change, nuclear fusion and the human genome project, too expensive for the EC alone). The third activity covers dissemination and optimization of the results of activities in Community research and technological development and demonstration. The fourth activity covers training and mobility of researchers in the Community. Further details of each of these activities are given in the Commission document COM(93)276.

THE PROPOSED TIMETABLE FOR THE FOURTH FRAMEWORK

9. The proposed timetable for agreement of the Fourth Framework Programme details adoption of the Proposal by the European Parliament in November 1993, followed by adoption of a common position by the Council in December 1993 and a second and, hopefully, final reading in the EP in February 1994. Adoption of specific programmes is hoped to be in April/May 1994. It is important that this timetable does not slip appreciably as the European Parliament elections are in June 1994 and a new EP Committee on Energy Research and Technology could not be expected to be appointed before September. The Third Framework Programme and its specific programmes will end in December 1994.

DETERMINING THE PRIORITIES FOR THE FOURTH FRAMEWORK PROGRAMME

10. When Professor Fasella, Director General, DG XII, came to meet the Select Committee in March 1992, he was concerned that the procedure of codecision would allow individual member states to bias the Programme towards their own national interests using the weapon of veto to get their way. At the Science Summit in Brussels held in October 1993, Professor Ruberti said that the Commission, Council and Parliament were working well together. It would be interesting to find out what the major stumbling blocks to agreement have been and whether a preoccupation with the size of the budget has precluded detailed discussion of the priorities of the Programme.

11. In the European Parliament's draft report on the Commission's latest proposal for FP4, they welcome the fact that during the evolution of the Proposal for FP4 through the two earlier working documents, there has been a reduction in the number of research areas from 54 to 28, but ask whether this is simply an "integration of previously disparate elements under new headings". The EP document goes on to ask, "how are these research areas selected and how is the budgetary division between them decided?". Similarly the Commission purports to have introduced "greater selectiveness with regard to Community RTD activities in order to increase their economic impact" (focusing on generic technologies). The Proposal document suggests that the 15 themes of FP3 have been reduced to 5 (and two new ones have been added) in FP4. The problem of stopping a particular programme is difficult in all arenas. It would be interesting to know if the Commission considers that specific research areas have actually been dropped.

12. The Commission Proposal document states that the first working document of the Fourth Framework issued in October 1992 "stimulated wide ranging debate with the constructive participation of the Member States, the European Parliament, the Economic and Social Committee and other Community organisations including research scientists and representatives from industry". The Committee might like to ask now all this information has been assimilated and incorporated into the final version of the proposal for the Fourth Framework, particularly in the light of the comments by the IAI detailed below in paragraph 22.

13. Once the Proposal document has been adopted the budgetary allocation between the specific programmes by which the objectives are to be achieved will also be debated. Currently many Member States take the view that 30% of the total budget is too much to spend on information technologies and that more should be spent on the environment and life sciences. The argument between funding nuclear and non-nuclear energy research continues. The degree to which the second, third and fourth activities could or should be integrated into required elements in projects funded under the first activity is also under discussion in the Council of Ministers.

14. In order to inform the Commission about the areas that require action on a Community level the Proposal document includes action to create a European instrument for technology assessment which would cooperate with national experts to supply a common knowledge base for discussions of RTD activities in Europe.

15. Under the Maastricht Treaty, the Framework Programme will also include research to underpin other policies of the Community such as agriculture, energy and transport. This will inevitably require considerable cooperation and coordination between DG XII and other DGs such as DG VII (transport), DG VI (agriculture). It is not clear if any specific measures have been taken to improve horizontal communications between the DGs. There is also the outstanding question as to whether the "customer contractor" principle could operate as the DGs are not seen to be particularly informed customers, so giving them total responsibility for formulating sections of the research programme might not be successful.

PARTICIPATING IN THE FRAMEWORK PROGRAMMES

16. The prospective participants in Framework activities have long been heard to complain at the bureaucracy of the Commission and the cost of submitting a proposal for funding. Participants claim that they need between 3 and 12 man-months to prepare an application for a project. With only about 20% of the projects being accepted (and down to only 1 in 12 for the Human Mobility programmes) this cost is becoming unacceptable. Alternative methods have been tried (and are continuing in the biomedical field) such as requiring only a project outline rather than a complete programme for an initial sift, but Professor Fasella pointed out at a meeting last year, the Commission found that it had to reject 1 in 20 of the initial proposals when only project outlines were required.

17. The time scale of the process of application for funds is also a source of much complaint. The relatively short time given to respond to a call for proposals tends to exclude SMEs from the process. This may then be followed by a very long delay before notification of acceptance or rejection of the proposal; this may have a prejudicial effect on subsequent research strategy and personnel capacity.

18. According to the report *The Impact of EC Policies for Research and Technological Development upon Science and Technology in the United Kingdom* funded by the Cabinet Office and DG XII, the UK has the largest number of collaborative links of any Member State. The UK performs more EC-funded research in HEIs and less in research organisations than the average for the Member States as a whole. Overall perceptions of cost versus benefit are positive but industry was more qualified in its enthusiasm than academics.

COHESION AND SCIENCE QUALITY

19. Applications for funding from a specific programme are submitted to four reviewers and those rated as excellent are returned to a programme committee who then align the proposals into the various sections of the programme. The peer review system is thought by some to operate well. However it is not clear how far the referees judge the application on the basis on scientific and technical merit alone. Short-listed proposals have then to be aligned with the balance between the sections in the specific programmes which may result in excellent proposals in over-subscribed areas being rejected in favour of less meritorious proposals in the less popular areas. The adherence to the principle of cohesion may also play a part here. It is not made explicit what weight is placed on regional preferences and the inclusion of SMEs when all proposals rated excellent are returned to the programme committee.

20. There is also an increasing awareness that cooperation between the technologically advanced (commonly thought of as the northern Member States) and the technologically less well advanced Member States (the southern Member States) leads to a migration of experts in the south to facilities in the north. This is not ideal and perhaps a reverse flow should be encouraged. There is also the suggestion that the different requirements of the southern European Member States regarding technical and economic applications are not sufficiently taken into account and that the technologically more advanced countries tend to dominate in decisions over the subjects of research so that cohesion is prevented rather than promoted. The Commission and others are pressing for the cooperative use of structural funds to solve some of these problems.

21. The southern Member States actually carry out a very small proportion of the research under the SPs as the bulk of the work is done by the UK, France, Germany, the Netherlands and to a certain extent Italy. The southern Member States also tend to have fewer large high-tech firms so they press for projects in which their universities can participate and projects which will be of benefit to SMEs. The southern Member States thus are great supporters of the Third Activity; dissemination and optimisation of results.

EVALUATION

22. The need for evaluation and assessment has been pointed out by both the European Communities Committee and the Science and Technology Committee on numerous occasions. The lumbering nature of the Framework Programmes has provided a bit of an obstacle to this in the past as the previous Programme has often hardly begun before formulation of the next must begin. However an increasing number of hard-hitting reports are being issued. One of these is *Community policy in the field of research and development: Assessment of the second and third R&D Framework Programmes and guidelines for the Community's future R & D policy* prepared for the European Parliament by the Institut Fur Angewandte Innovationsforschung (Institute for Applied Innovation Research, IAI), at Bochum. This report highlights a number of problems, for example the top down nature of the programme; it is stated that IRDAC (the Industrial R&D Advisory Committee), which advises the Commission either by request or on its own initiative, feels that its proposals are not sufficiently heeded by the Commission. The report also concludes that SMEs are not sufficiently involved in the initial formulation of the Programme. They also state that "There is a lack of specific information on which objectives can be attained by which means. Ex ante evaluations at the programme orientation phase are also lacking. Purely formal definitions of objectives, such as *promotion of international competitiveness* etc, are not operational and not therefore appropriate for programme orientation. What is needed is a practical analysis of the resources and material objectives". There is also criticism that "when proposals are being drafted, precise statements regarding the objectives to be achieved are avoided, presumably in view of the various interest groups that have to be won over and the variety of obstacles that have to be overcome. Given this lack of specification, the proposals can be interpreted as the various interest groups wish. The result of many well-intentioned efforts is often an unsatisfactory compromise which, owing to inadequate resources, neither advances technological progress nor has any positive social and economic consequences owing to inadequate implementation". In response to these complaints the Commission have included in the Proposal document a commitment to monitor the progress of the Programme and to amend or supplement the Programme if required. The CERT (EP) have proposed a further requirement for a mid-term review of FP4 based on an on-going, real-time, rigorous external assessment by independent experts as well as a final assessment prior to the Commission presenting its proposal for FP5.

SUBSIDIARITY

23. FP4 must adhere to the principle of subsidiarity which dictates that the Community should only take action on research if the objectives can be better achieved by the Community than by the Member States acting on their own. This is supposedly satisfied by the Programme "concentrating its efforts on generic technologies with multi sectoral impact and on large scientific projects" and "a higher degree of coordination between national and Community actions".

ATTRIBUTION

24. Both the European Communities Committee and the Science and Technology Committee have questioned the UK Government's attitude to EC funds and the process of attribution. The Committee asked Professor Fasella about his attitude to attribution and he said that he felt that it was up to the Member State to decide whether it "put its faith in the Community" and reduced its own national effort or if it elected to put in even more money to "participate massively".

25. Under the current Treasury regime of EUROPE the whole of the UK's contribution to the European budget for a field which can be aligned behind the policies of an individual Department, over and above a level based on 1984 expenditure, will be taken from their allocation in the PES round. The ostensible purpose is that Departments should take an active interest in getting value for money from Community research and they should fund their own laboratories to do the work they do best and leave that work with a European angle to Europe. There is a certain amount of room for negotiation with the Treasury but they would seem very much to have the upper hand. Attribution at the Departmental level of relevant domestic programmes is then in the hands of the parent Department, who have the discretion to make savings elsewhere if they see fit.

26. According to the UKIMPACT study (see above, paragraph 18), only the Netherlands operates a similar scheme and that is with a 1992 baseline.

THE SECOND ACTIVITY

Coordination with other European bodies

27. The aim here is to reinforce the coherence of research in Europe. In particular the Commission acknowledges that there must be closer coordination with the efforts of European organisations such as CERN, ESA, EMBL, and ESF. During his visit to CERT last year Lord Dainton pointed out the dangers of not coordinating with these bodies, an example being the effect on the EMBL of the flood of fellowship support from the Human Capital and Mobility programme which it was feared would lead to a reluctance on the part of European Governments to maintain the level of their own funding of Fellowships. In the *International Scientific Programmes* report (HL Paper 24, Session 1990-91) many witnesses thought that very careful consideration should be given to ensuring that existing European but non-EC collaborative programmes are resourced at a level where they can do the job effectively. In the last few public meetings on the topic of the Framework Programme there has been increasing emphasis on the need to set up networks of small institutions rather than single large facilities.

Cooperation with Central Europe and the CIS

28. The objective here is to contribute through cooperation in areas of mutual interest to the safeguarding of the science and technology potential of these countries and to their restructuring. This should produce a "welcome element" of stability through rehabilitation of their production systems and an improvement in the quality of life. Cooperation is expected in the areas of the environment, energy, safety and "technologies having an integrating effect on the economy".

Cooperation with non-European Third Countries

29. These countries are principally the USA, Japan, Canada and Australia. The newly industrialised countries, such as China, are not explicitly mentioned. The main vehicles for cooperation include certain mega projects, joint research and study projects as well as the exchange of information and experts.

THE THIRD ACTIVITY

Dissemination of results and SMEs

30. This covers intersectoral and transnational dissemination and exploitation of results of RTD, demonstration activities, and the support of technology transfer. Priority is to be given to SMEs. The Commission propose to establish a European infrastructure for RTD dissemination and optimisation by strengthening the activities of the relay centres network, reinforcement of the European public information and dissemination service, and the provision of specialist services and direct assistance to SMEs (stimulation of know-how transfer, technology clubs etc. and indirect measures which, for example, reinforce communication between financiers and promoters of technological projects, effective means of mobilising private capital etc). Some of the measures suggested seem to include actual finance for SMEs including loan guarantee schemes. These programmes will be implemented in close cooperation with other Community actions in the field such as European Investment Funds. How this can be disassociated from direct subsidy is not clear.

31. It is also unclear how far applications under the first activity themes will be expected to provide explicit plans for application and dissemination of results with or without emphasis on SMEs. The northern Member States are keen to have greater emphasis on both dissemination of results and training included as a requirement for funding under the first activity themes with a smaller percentage of the total budget allocated to continuing SPRINT (strategic programme for innovation and technology transfer) and VALUE (valorisation and utilisation for Europe) which largely support the formation of information networks throughout Europe. As mentioned in paragraph 21 the southern States see this area as one where they could potentially get the greatest gains and so would like the amount of money allocated to at least remain at its current proposed level.

Alignment with Eureka

32. In order to capitalise on the pre-competitive work carried out under the aegis of the Community, the Commission have suggested that there should be stronger ties between the EC research programmes and EUREKA industrial research projects. This is favoured by some and resented by other Member States.

Flexibility

33. The Framework Programmes have been criticised on the aspect of flexibility both of timing and content. The time scales involved preclude participation of SMEs and the emphasis on technology push means that innovative developments may be promoted without there being any markets for their exploitation. If customers participate at an early stage this should allow anticipation of their needs and their integration into development activities. The Commission have recognised some aspects of these problems and have proposed setting aside a limited amount of funds for unsolicited proposals from operators (mainly SMEs, technical centres and research organisations) which have to be processed very quickly, as well as for the continuous monitoring of the Programme in order to adjust the direction of SPs if necessary.

The Joint Research Centre

34. The Joint Research Centre includes the four institutions: Ispra, Italy, which covers work on advanced materials, systems engineering and informatics, the environment, remote sensing and technology safety; Geel, Belgium, reference materials and measurements; Karlsruhe, Germany, aspects of nuclear technology and Petten, Netherlands which also covers advanced materials. The majority of the projects allocated to the JRC are to be carried out by the Ispra centre. However the role of the Joint Research Centre is coming into question. Several countries have recently queried the effectiveness of its management. The present proposal allocates some 1.137 billion ECU to the JRC to apply to different specific programmes and to give the Commission technical and scientific support in disseminating and exploiting research findings and carrying out other EC policies. There is an increasing feeling that some of these projects could be carried out equally well by others or by networks of others and that giving the JRC an "inside track" conflicts with the philosophy behind the EC Public Procurement Directive which opens up many supplies and works contracts to tender throughout the Community.

APPENDIX 4

MINUTES OF EVIDENCE

TAKEN BEFORE THE SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY

THURSDAY 25 NOVEMBER 1993

Present:

Butterworth, L.	Renwick, L.
Hilton of Eggardon, B.	Selborne, E. (Chairman)
Howie of Troon, L.	Walton of Detchant, L.
Perry of Southwark, B.
Perry of Walton, L.	Dainton, L.
Platt of Writtle, B.	Kennet, L.
Porter of Luddenham, L.	

Examination of Witnesses

PROFESSOR ANTONIO RUBERTI, Vice-President of the European Commission, MR J GABOLDE, Director, DGXII, Science, Research and Development, and MR M LENER, Assistant to Professor Ruberti, were examined through an interpreter.

Chairman

1. Professor Ruberti, colleagues, on behalf of the Select Committee on Science and Technology of the House of Lords we are delighted to welcome you today. We are very pleased that you have joined us and this is, of course, the European Week of Scientific Culture, something I know you have been greatly instrumental in arranging, and it seems particularly appropriate therefore that you have been able to join us today.

(*Professor Ruberti*) My Lord Chairman, My Lords, Ladies, it was with great pleasure and willingness that I accepted the invitation to come and present the main lines of the next (fourth) Community Framework Programme for Research and Technological Development to the members of the House of Lords Select Committee for Science and Technology. For a number of years now, your Committee has shown a profound, constant and exemplary interest in Community research activities. You have held a real dialogue with the Commission and have regularly given us the benefit of your very useful advice. Today's meeting is thus a continuation of the tradition of contacts that can be considered a model for relations between the Commission and the representatives of the peoples of Europe. By way of introduction to our discussions, I should like to sum up in a few phrases what I think can be considered as the main lines of the new Framework Programme currently under discussion. The Commission's proposal for the Fourth Framework Programme combines aspects of continuity and elements of complete novelty. Continuity because certain needs remain with us and because nothing is more harmful to the success of research efforts than continual changes of course and abrupt interruptions in funding. Novelty as well, because we need to adapt our activities continually to the rapid evolution of

science and technology and the expectations of society; we need to draw lessons from experience; and improve our existing instruments. Given your familiarity with Community activities as they have been carried out up till now, I will not dwell on the aspects of continuity. I would, though, like to point out the elements of novelty. These fall into three categories: the general objectives pursued; the contents of the programme and the areas covered; the conditions for carrying out these activities. In short, the main aim is to improve the impact of Community activities. This should be achieved in three ways. First, by making the Framework Programme an instrument for a better and real coordination of efforts undertaken at national and Community level and with other organisations for European scientific cooperation. Next, by concentrating activities on a certain number of key areas and technologies. Finally, by increasing considerably our efforts on diffusion and exploitation of research results. As far as the content is concerned, as well as traditional areas such as industrial technologies, environment or life sciences and technologies, on which we need to place a particular emphasis, areas have appeared which correspond to particularly important economic and social needs at the European level, such as transport. For the first time, the Fourth Framework Programme will also include work on targeted social economic research: evaluation of scientific and technological choice; research on education; work tied to the problems of social exclusion, and, more particularly, urban problems. Lastly, this new Framework Programme should be put into practice under conditions which allow for improvements in the flexibility and efficiency of Community activities. The management of the programmes will be simplified and the transparency of the methods used increased. Efforts will be made (and have already been set in motion) to involve the

25 November 1993]

PROFESSOR ANTONIO RUBERTI,
MR J GABOLDE AND MR M LENER

[Continued]

[Chairman *contd.*]

scientific community more in the drawing up of the programmes as well as involving European and national research organisations in their execution. In very general terms, these are the main characteristics of the Fourth Framework Programme soon to be examined by the Council of Research Ministers. For more details on these various points or other aspects of future Community activities, I am at your disposal and ready to receive your questions, remarks and suggestions.

2. Thank you, Professor Ruberti. Could I ask, as in your opening address you did not dwell on the aspect of continuity, whether perhaps you would just like quickly to review the previous Framework Programmes and tell us which you think were the outstanding successes of the past Framework Programmes.

(*Professor Ruberti*) Chairman, it has been ten years since we started the Framework Programmes. I think there are four main elements that we can single out in these past programmes. The first main result has been the creation of networks of cooperation which have fostered cooperation between Member States and the laboratories in the Member States. PREST & SPRU, who have evaluated the Community's RTD programmes, have shown that these programme networks have been the first significant result obtained and the United Kingdom has been extremely active in this field. So this is the first main success. The second point is several scientific results of great importance. I am referring to two in particular: the first is thermo-nuclear fusion—and I only need to refer to the project JET which started in 1991—and secondly the publication in "Nature" of the first complete analysis of a genome conducted by 35 European laboratories. The third effect has been the industrial impact which has given significant results from the point of view of industrial technology. The fourth is the quantitative impact. One need only to consider that most of the UK universities and 40 per cent of the major industrial researchers have participated in projects. So I believe these four to be the most significant successes obtained in the first Framework Programmes.

Lord Dainton

3. Professor Ruberti, good afternoon and thank you for coming. I wonder if I might just ask you, as you did yourself refer to the need for transparency of your procedures, if you can tell us how you construct your budget? Do you in fact take particular areas which you are concerned to develop and assign sums to them which you would like to ask for? If so, how do you arrive at those sums? How do you set the claims of one subject against another in cost before you know how capable Members of the Community are to make contributions?

(*Professor Ruberti*) That is a very good question, perhaps a little malicious!

4. Not at all, I am a very kind person!

(*Professor Ruberti*) Well in truth when you face these new problems you are always very far from the best solution because you are faced with several constraints, the most important of which is the global amount in the budget and the amount allocated to

research. The first point I want to make is that in the problem of choosing the global amount, first you chose the global amount and then you have to allocate it between the different sectors, faced with problems such as continuity, which is one of the main elements in the choice, and pressures from scientific and industrial concerns. What we try to do is take stock of previous programmes and see how much demand there was from the laboratories as an indication of the success and good quality of such programmes. I must say that in the developments that we have witnessed in the past ten years the Community, just to mention one example, was very active in the field of agriculture. However only in the Third Framework Programme was research into agro-industrial matters conducted, a bit late. However, nowadays we fully realise the importance of such issues. There is a tendency also to increase effort on the environment and in more general terms on themes where significant progress can be made.

5. When in the course of your Fourth Framework Programme you find by experience at the end of the first year that the sum you have allocated to one area is insufficient can you, for example, transfer funds from another area? Is there flexibility of administration?

(*Professor Ruberti*) The problem you have mentioned is an extremely important one. Indeed, the question of flexibility is a central issue. Personally, and I am not speaking here as Commissioner, I would tend to increase the degree of flexibility. In general, our programmes take two years to gain approval and they last five years. However, it is true that they are rigid; flexibility can only be found in the action of adjustment, not so much in the transfer of sums that you referred to. I would welcome such possibilities of transferring sums. However, there are procedural difficulties because the Council and the Parliament do not want to give such flexibility. Hence we face objective constraints.

6. Does the process of co-decision, which now applies, make it even more difficult to get that flexibility?

(*Professor Ruberti*) Yes, indeed, the difficulties do exist and I am involved in a process on which I have been working extremely hard. However, I have to face the constraints of the co-decision procedure on the one hand and unanimity within Council on the other. To obtain both these things is extremely difficult and in case one does not obtain both these conditions, there would need to be a review and we would need to begin the process once more.

Lord Renwick

7. Professor Ruberti, my point is on the special programmes. The TIDE programme—Technology Initiative for the Disabled and Elderly—seems to have been cut in the Fourth Programme from some 20 million ecus a year to some 6 million ecus a year. In the past it apparently was over-subscribed but has now been put as one of the twelve sub-lines of the telematics programme rather than within, what seems to be more appropriate for such a programme, Life Sciences or Socio-Economic Research.

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[Continued]

[Lord Renwick *contd.*]

(*Professor Ruberti*) In the Fourth Programme, within the telematics line exists an action which concerns the elderly. However, the exact amount has not been fixed, although in my opinion there will be continuity with the previous action. To be honest with you, I had not really thought about the issue, but your suggestion, for example, to put it into the life sciences or find another attribution for it, is an interesting one. I will take note of it and it will help me to think further.

Lord Kennet

8. Professor Ruberti, may I say, first of all, what a personal pleasure it is to me to see you here because over the last 20 years or so I have had a great deal to do with DGXII. In this House we like Commissioners who are in charge of DGXII, one of them we liked so much that he is now a Member of the House of Lords, that was Commissioner Dahrendorf. Let me now put to you a question: under the Maastricht Treaty itself the Framework Programme takes on responsibility for supporting research in other areas of community policy, how does this actually work in detail? Do the other DGs continue to have research budgets of their own? Will there be any new co-ordinating machinery between DGXII and the other Directorates-General?

(*Professor Ruberti*) The issue which you raise is an extremely important issue, the idea of a link between research and the Community policies. Indeed, in this sense we make a considerable effort and, to give an example, there are programmes in the field of telecommunications or computers which are linked with trans-European networks, programmes for agriculture which are linked with the new agricultural policy, programmes to do with the environment which are linked with the new environmental policy, and so forth. So this fact is part of the Fourth Framework Programme. In the Third Programme, for example, there was no link with transport and now there is because there is a link with the trans-national networks. There was no research on education and now there is. What you have touched on is an extremely important point, the link between research and Community policies. In the process of elaborating the programme the DGs co-operated—for example on services to do with transport, on agriculture and environment—and you can imagine how difficult a process it was to put it all together in the preliminary work leading up to the actual Commission proposal. So the really new element in the Fourth Framework Programme is, in this respect, a precisely better link between research and Community policies.

Baroness Platt of Writtle

9. In view of the principle of subsidiarity what areas of science require to be funded at the European level?

(*Professor Ruberti*) Subsidiarity is, of course, now at the very centre of the political debate; however, I do believe we should see the situation sector by sector. In the sector of research I can mention cases where a Community action would be good. The first such case would be the size of the project—for example, nuclear fusion—projects where a single

country cannot do the work by itself. A second case is the sharing of data from experiments conducted at national level which can help trans-national evaluation of problems, for instance of environment and health. The third case is whenever bringing together brings added value.

Lord Howie of Troon

10. Some people believe that the attitude of the British Government towards the Maastricht Treaty is somewhat ambivalent, does this pose any specific problems for you in this particular area?

(*Professor Ruberti*) I would like to be very frank on one issue. In the United Kingdom there is the very rational way, which is perfectly acceptable from an intellectual point of view, of evaluating research budgets. There is a research budget, part of which goes to national efforts and part goes to the Community, which is subsidiary. This implies that when defining the overall budget for research in the context of the European budget, the United Kingdom is always very cautious because it must decide which part it has to take away from its national organisations. Now only the United Kingdom (and to some extent Spain) actually do this. This is why the United Kingdom, in the discussions, has difficulties in determining the resources to allocate to research. It is in a different position with respect to all the other Member States. Of course, it would not be difficult if all Member States did this. However, given that it is really only the United Kingdom that does it, it creates a difficulty in defining the global amount. In the other countries the Community resources in the Fourth Framework Programme are considered to be "on top", something that is added on. Now in this country the ministers responsible for research must decide which part of the budget will be used nationally and which part will be Community effort. This implies negotiation problems.

Lord Kennet

11. Professor Ruberti, the British policy you describe is not unique to the field of research. I believe we are pretty familiar with it in the application of the Social Fund and its expenditure. Can you tell us if it is to be found in all fields of Commission activities or is it something which is special to the Social Fund and to research?

(*Professor Ruberti*) I have to confess, I must be very honest in this, I can only speak about the research side for which I am competent and in research there does exist such a problem. For other fields I cannot say.

Baroness Platt of Writtle

12. In the process of selecting individual projects to be funded, how is the balance struck between scientific excellence, participation of less technologically advanced countries and participation of small and medium sized enterprises and perhaps I could also add: is the Professor satisfied with the technical adequacy of the advice he gets?

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[Continued]

[Baroness Platt of Writtle *contd.*]

(*Professor Ruberti*) Indeed. For the sake of research itself obviously the best criterion should always be excellence for this is the best way to get ahead. However, one must acknowledge the complexity of the European situation and the divergence between scientific systems. This implies that we must foster an increase in the scientific level in the weaker Member States. I have brought a paper here with me that deals with this relationship between cohesion and research, which I believe to be an important issue and on which I will have a few more words to say. In the Community, for instance, we have Greece that spends 0.46 per cent of its national budget on research and Germany 2.9 per cent. As we can see, the ratio is one to six. This implies that there is a very considerable difference here and a difference which cannot be solved by the Fourth Framework Programme. So what we have suggested should be done for the weaker countries is to use the Cohesion Fund, in a sense to strengthen their ability in order to be able to use more effectively the resources provided by the Fourth Framework Programme. I would like to hand out that document. It could be useful for you to analyse it and see some more details on this issue.

[Document referred to: "Cohesion and RTD Policy", COM(93) 203.]

Baroness Perry of Southwark

13. Professor Ruberti, I would like to turn to the question of technology transfers. We very much welcomed the fact that in the Framework Programme you give some mention to the involvement of small and medium sized enterprises in technology transfer programmes. Could you tell us what strategies you hope to deploy in order to increase the participation of these smaller companies?

(*Professor Ruberti*) When we talk about the Fourth Framework Programme, we should perhaps stress the fact that there is a third action which deals precisely with the diffusion of the results of research. There is considerable discussion going on on this issue at the moment. The European Parliament seems to be favourable but the Council creates certain difficulties. We have not established a clear position. The problem is the following: up to now what has been stressed is the transfer of research that has been done at a Community level. However, with small and medium sized firms, the transfer of the results of research should be not only those results which come from the advanced research at Community level; small and medium sized firms need to be able to innovate so they need the transfer of all types of research. The problem of innovation, that is the need for innovation within the context of small and medium sized firms, was addressed in the Third Programme in one particular respect, the CRAFT [Co-operative Research Action For Technology] Programme for industrial technologies. In the Fourth Programme, we plan to extend such mechanisms to other fields, for example, to information and communication technologies, to life sciences and so forth, in an effort to foster co-operation between small and medium sized firms. On this point as well we have a special document, prepared by Commissioner d'Archirafi and myself,

precisely on the relationship between research and small and medium sized firms [COM(93) 356] because I cannot possibly do justice to the complexity of the issue with just one simple reply.

Lord Porter of Luddenham

14. Professor Ruberti, I have recently applied myself under the human capital and mobility programme. Since I was successful I will say thank you and complain no more about the process of applying for funds but the difficulty continues with the bureaucracy once the funds have been obtained and the best way that I can tell you about this would be to give two specific examples. These are both examples of how Brussels and the Commission are doing detailed jobs long after they have done the job which I think was necessary. The first is that they determine, they specify precisely, the salaries of the post-doctoral workers that I shall employ. Now not only is this unnecessary and could be left to the group but it is impossible to deal with because it means that the European non-British recipients on this scheme must be paid twice what the British people on other schemes are and indeed twice what, for example, the Royal Society would pay non-British Europeans. That is obviously a difficulty and that could be left more flexible, the same amount could be paid but it could be used for other purposes than salaries. The second difficulty which I would like to mention is that when all the applications have come in and we have studied very carefully those applications and made the appointments we would expect to report them to Brussels and leave it at that, but no, they are reconsidered in Brussels, they are questioned again sometimes in Brussels and the whole process goes on another six months and the man has gone to another job by this time. Is it your hope and intention that in the Fourth Programme some of these detailed bureaucratic parts of the scheme could be eliminated?

(*Professor Ruberti*) In this last year I have met many people from the scientific community and I have had positive feedback on the initiatives of the Commission—indeed praise for the initiatives of the Commission. However, I have also received criticism for the way that the system is managed. I acknowledge the problem and I recognise we must simplify. However, I should like to say a few more words about this. We will shortly publish—I wanted to mention this specifically—a booklet. On 6th December we will present it to the Research Council. It deals with the problem of establishing better trust between the Community and participants in the research programmes, in particular through simplification of the application forms and better definition of the contracts. In the first place, there will be calls for proposals regularly four times a year on precise dates. Secondly, the application forms will be made simpler, and thirdly there will be a rotation of experts for project assessments. As you can see, these general rules will simplify the mechanism. In particular on the mobility programme, we have received criticisms of its operation so far; for example, the issue you mentioned and the flexibility of grants. We will try, within the Fourth Framework

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[Continued]

[Lord Porter of Luddenham *contd.*]

Programme, to eliminate those defects we have witnessed in the first rounds of the process.

15. I see your difficulty. Would that mean that the German research worker was paid half what he would be paid in Germany? It is a difficult problem. I wonder how you are going to solve it?

(*Professor Ruberti*) This is indeed a problem that cannot be solved easily at all. There are varying situations from one Member State to another. In some Member States grants are subject to tax and in others they are not. We really do need a comparative study of the mechanisms that exist in various Member States to tackle the problem more effectively.

16. Thank you very much. Just one more sentence of clarification, more a suggestion really: if everything were left the same as it is and it were made clear that the sum of money paid to the European research worker in England could be used to support his research as well as his living expenses then all would be well.

(*Professor Ruberti*) Yes.

Lord Porter of Luddenham] Thank you.

Lord Walton of Datchet

17. Professor Ruberti, I think we would like to learn more about the Joint Research Centre which receives quite substantial funds from the budget under the Fourth Framework Programme. At first sight it would seem that that might conflict with the general philosophy behind the Commission's public procurement Directive. We would like to know what you see as being the advantages of the Joint Research Centre? Why was it established in this form, in four different centres all dealing with different subjects? Finally, how is its progress reviewed and evaluated?

(*Professor Ruberti*) I believe that at the next Council of Ministers for Research there will be two fundamental issues, one of which will be the budget and the second one will be precisely the Joint Research Centre. So attention will be given to that point in that context. I must say, if we were to retrace the history of Community research we could well do it through the history of the Joint Research Centre. In its beginnings it was dealing with nuclear research which was subsequently abandoned by the European Community. As the Joint Research Centre entered a period of crisis following the decline in nuclear research in 1988, reforms were introduced to solve this crisis at the Joint Research Centre. A reorganisation of its activities was foreseen around several, new, main themes such as environment, agriculture and nuclear safety. At the present time, the Joint Research Centre has four main tasks. On the one hand there is technical and scientific services for Community policies, in particular agricultural policies. Then there is the research effort that is meant to give support to the Community, autonomous research and fourthly outside contracts, with third countries and so forth. The problem we are discussing is at the forefront of the thinking of several governments, like the United Kingdom Government. The Netherlands Government are beginning to mention this issue. The problem is how to strike a balance between the need for a basis of

independent activity by the Joint Research Centre and progressively opening it up to competition.

Lord Dainton

18. I wonder if I might ask two questions, one of which relates to the second activity of the Programme and the other to the fourth activity. The first is as regards the second activity which is co-operation with third countries. I would like to ask about the possibility of developing a European science policy where Europe can make a remarkable contribution if it so wishes to a global problem. For example, I refer to biodiversity and the development of countries which are at present not conserving their biodiversity. The position there is that there is an immense amount of expertise and collections of materials, both botanical specimens and animal specimens, which could be I think very well deployed in helping the major problem of global biodiversity. Is there any means by which DGXII and the Fourth Framework Programme can take initiatives over this? I would add in connection with that that there is another opportunity at present which I think Europe should not miss which is to become the world centre for nuclear research given the Americans' decision not to proceed with the superconducting super collider.

(*Professor Ruberti*) Yes. The second activity under the Fourth Framework Programme gives two main possibilities for action: on the one hand regarding relations with the countries of Central and Eastern Europe, which is important in general terms for the well-being of Europe. The second main issue is with respect to "mega-projects". Personally, I am quite favourable to this development. I talked about it with John Gibbons (Science Adviser to the President) in the United States and again in Japan. However, it is not easy to bring about these mega-projects and indeed, beyond fusion, we do not see much developing in this field. The United States, in respect to the SSC, wanted rather to compete with European excellence in their field. So we must work to increase co-operation and effort on worldwide projects, such as in the fields which could be adapted to this approach, such as global change, such as biodiversity. While it is possible to suggest mega-projects in such fields, there is a certain resistance to entering into worldwide, co-operative efforts.

19. The second question relates to the fourth activity and arises out of the answer which you gave earlier in relation to the mobility of European scientific workers. You gave the example of co-operation between the developed part of Europe and the less developed part, giving the example of Greece. The Framework Programmes have been in existence so long now that I would like to know whether you have any information which suggests that workers from the less developed parts of Europe who migrate to do co-operative work never go back to their countries? In other words, is a programme of trying to raise the standard of work in a less developed country self-defeating?

(*Professor Ruberti*) I can give you some positive news on this front. The example you mentioned was Greece. With the help of the Structural Funds, Crete managed to create a centre for biology which is an

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[Continued]

[Lord Dainton *contd.*]

excellent centre, the director of which is Professor Kafatos, who is also the President of EMBL, the European Molecular Biology Laboratory. Another example is Portugal which has created very good research infrastructure with the help of the Structural Funds. This shows that even in the weaker Member States on the periphery of the Community the combined use of the Fourth Framework Programme and the Structural Funds has brought about the creation of good, solid research structures and this has helped to reduce the problem of the brain drain. In particular the brain drain towards the United States has decreased. This also shows that Europe is becoming more and more attractive for researchers, not only at the centres of excellence but at the periphery also.

Chairman

20. Could I ask a question which refers to collaboration with scientists in Eastern Europe and the previous USSR, the CIS States. Do you feel that this programme is an appropriate method for producing economic and social stability and support for these nations?

(*Professor Ruberti*) Relations with the countries of Central and Eastern Europe are an extremely complex issue. There are two main elements here: on the one hand, we have the aid policy as it is carried out and then there is the second part which deals more specifically with research. This relationship is extremely important and that is why I wish to dwell on it a little more. I believe that scientific competition with the United States and Japan is going to grow more and more. That is why the Community must fully use the potential that is offered by the countries of Eastern and Central Europe. In these countries there are independent niches of excellent research which have developed and these can be applied in various ways to wealth production, together with European scientific research. This is why consolidating relationships between these countries is important with a view to meeting the competition


represented by the United States and Japan. The political isolation in these countries, in particular that of the Russian scientific community, has been part of a combination of factors which have brought about several developments which are original in nature and which can make a positive contribution. This is why we must increase our support for the scientific systems of these countries and also exploit whatever positive elements we can draw from them.

21. Professor Ruberti, you have been very patient in answering our many questions. Before we conclude this most interesting session would there be any further points which we have not dealt with which you feel we should have covered?

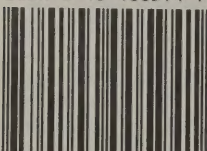
(*Professor Ruberti*) I thank you very much, first of all, for this opportunity you have given me. The questions were all extremely to the point. I want to confirm that the Commission and I myself intend to continue this relationship we have established with you—to give you any documentation which might be deemed to be useful and also to obtain any suggestions which might be useful; such as the one just now on the mobility programme. We really want to manage this in the most positive way possible and we believe that relationships with national parliaments are very important in this context. I confirm our full willingness to continue this co-operation.

Chairman] Thank you very much. We reciprocate the interest in the Framework Programme. We will be following this Programme with great interest, just as we have the previous Framework Programmes. Thank you once again, Professor Ruberti, for joining us today. We have valued enormously the opportunity to talk to you about the Programme. Thank you also to your colleagues who have accompanied you, we are most grateful to them, particularly I must say—and I hope the translator, Mr Ferrari, interprets this accurately—we are most grateful to the translator for his excellent interpretation. Thank you very much indeed.

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